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Rhodora

JOURNAL OF THE

NEW ENGLAND BOTANICAL CLUB

Conducted and published for the Club, by

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Vol. 52. September, 1950. No. 621.

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The New England Botanical Club, Inc.

8 and 10 West King St., Lancaster, Pa.

Botanical Museum, Oxford St., Cambridge 38, Mass.

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RHODORA.—**A monthly journal of botany, devoted primarily to the flora of the Gray's Manual Range and regions floristically related. Price, $4.00 per year, net, postpaid, in funds payable at par in United States currency in Boston; single copies (if available) of not more than 24 pages and with 1 plate, 40 cents, numbers of more than 24 pages or with more than 1 plate mostly at higher prices (see 3rd cover-page). Back volumes can be supplied at $4.00. Some single numbers from these volumes can be supplied only at advanced prices (see 3rd cover-page). Somewhat reduced rates for complete sets can be obtained on application to Dr. Hill. Notes and short scientific papers, relating directly or indirectly to the plants of the northeastern states, will be considered for publication to the extent that the limited space of the journal permits. Illustrations can be used only if the cost of engraver's blocks is met through the author or his institution. Forms may be closed five weeks in advance of publication. Authors (of more than two pages of print) will receive 15 copies of the issue in which their contributions appear, if they request them when returning proof. Extracted reprints, if ordered in advance, will be furnished at cost.**

Address manuscripts and proofs to
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Subscriptions (making *all remittances* payable to RHODORA) to
Dr. A. F. Hill, 8 W. King St., Lancaster, Pa., or, preferably, Botanical Museum, Oxford St., Cambridge 38, Mass.

Entered as second-class matter March 9, 1929, at the post office at Lancaster, Pa., under the Act of March 3, 1879.

INTELLIGENCER PRINTING COMPANY
Specialists in Scientific and Technical Publications
EIGHT WEST KING ST., LANCASTER, PA.

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THE NEW ENGLAND BOTANICAL CLUB

Vol. 52. September, 1950 No. 621

NOMENCLATURAL CHANGES IN BROMUS

H. Keith Wagnon

Bromus inermis Leyss. (sect. *Bromopsis* Dumort.), a native of Europe, Siberia, and China, has apparently become more widespread in North America than any one of the native species of *Bromus*. Its introduction into North America preceded the first recognition of the closely related *B. Pumpellianus* Scribn. When Shear published his "*Revision of the North American Species of Bromus Occurring North of Mexico*" in 1900, he said in his discussion under *B. Pumpellianus*, "The difficulties of separating these species [i. e. *B. inermis* and *B. Pumpellianus*] are likely to be greatly increased in the future by the rapid distribution of the cultivated forms of *B. inermis* in the region occupied by *B. Pumpellianus* and also by the probability of hybridization of the two plants".

Later, in 1942, Hultén postulated that *B. Pumpellianus* was the American counterpart of *B. inermis*, and that its varieties *arcticus* and *villosissimus*, as well as the Kamchatkan *B. ornans* Kom. were northern variations of this complex. In 1949, Elliott also felt that *B. ornans* Kom., *B. Korotkyi* Drob., *B. irkutensis* Kom., *B. vogulicus* Soczava, *B. Richardsonii* Link, and *B. sibiricus* Drob. as treated by Nevski and Sochava (1934) could be included in the complex.

At this time F. C. Elliott also outlined the North American distribution of *B. Pumpellianus* and *B. inermis*. He presented evidence to show the presence of intermediate forms, and postulated that "introgression of the two" was taking place in the range of *B. Pumpellianus*. He felt that the hybridization be-

tween the two species was largely confined to modified habitats. Artificially reproduced F_1 hybrids between the two octoploid species were found to be moderately fertile under open-pollination. Using this evidence, Elliott reasoned that recent divergence of the two species from an Asiatic center of germplasm was suggested. A migration, he believed, took place in a Pleistocene era when cool, moist conditions prevailed over a large area of North America. Elliott concluded that *B. Pumpellianus* should be reduced to a subspecies of *B. inermis*, but did not make the necessary nomenclatural changes.

I have recently completed an intensive study (unpublished) of the North America members of *Bromus*, section *Bromopsis*. During the course of this study it became evident that the morphological differences between *B. Pumpellianus* and *B. inermis* were less than those prevailing between other pairs of closely related species of *Bromopsis*. This, in addition to the many features which the two have in common (e. g. both are octoploids, both have creeping rootstocks which are wanting in most of the other species of the section, and both have a northern range of distribution), and in addition to the presence of many intermediates between the two supposed species, strengthens Elliott's contention that the two are no more than sub-specifically different. The following combinations are necessary.

BROMUS INERMIS Leyss. subsp. **inermis** (Leyss). Wagnon, stat. nov. *B. inermis* Leyss., Fl. Hal. 16. 176[1]. *Festuca inermis* DC. & Lam. Fl. Franç. **3:** 49. 1805. *Schedonorus inermis* Beauv., Ess. Agrost. 99, 177. 1812. *Festuca inermis* var. *villosa* Mert. & Koch, Deutschl. Fl. **1:** 675. 1823. *B. inermis* var. *aristatus* Schur, Enum. Pl. Transsilv. 805. 1866. *B. inopinatus* Brues, Trans. Wis. Acad. **17:** 73. 1911. *Forasaccus inermis* (Leyss.) Lunell, Am. Midl. Nat. **4:** 225. 1915. *Zerna inermis* (Leyss.) Lindm., Svensk. Fanerogamfl. 101. 1918. *B. ciliatus* subv. *denudatus* (Wieg.) Farwell, Am. Midl. Nat. **10:** 204, as to plant only. 1927. *B. inermis* forma *villosum* (Mert. & Koch) Fernald, RHODORA, **35:** 316. 1933. *B. inermis* forma *aristatus* (Schur) Fernald, RHODORA **35:** 316. 1933.

This subspecies may be readily distinguished from the following one by its glabrous blades and by the glabrous nodes which are usually 3–5 in number.

[1] No attempt has been made to search for synonymy of *B. inermis* in foreign literature; only those names found in American works are listed.

Bromus inermis subsp. **Pumpellianus** (Scribn.) Wagnon, stat. nov. *B. Pumpellianus* Scribn., Bull. Torrey Bot. Club **15:** 9. 1888. Type: *F. Lamson-Scribner* **418;** collected in 1883 in the Belt Mountains, Montana; seen in the U. S. National Herbarium.

This subspecies is best identified by its blades which are pilose at least on the upper surface and by the pubescent nodes which are 2 or 3 in number. In North America it is represented by the two following varieties, both of which are apparently capable of hybridizing with the subsp. *inermis.*

Bromus inermis var. **purpurascens** (Hook.) Wagnon, stat. nov. *B. purgans* var. *purpurascens* Hook., Fl. Bor.-Amer. **2:** 252. 1840. *B. purgans* var. *longispicata* Hook., Fl. Bor.-Amer. **2:** 252. 1840. *B. Pumpellianus* Scribn., Bull. Torrey Bot. Club **15:** 9, as to the type. 1888. *B. ciliatus* var. *coloradensis* Vasey ex Beal, Grasses N. Amer. **2:** 619. 1896. *B. Pumpellianus* var. *Tweedyi* Scribn. ex Beal, Grasses N. Amer. **2:** 622. 1896. *B. Pumpellianus* var. *melicoides* Shear, U. S. Dept. Agr., Div. Agrost. Bull. **23:** 50. 1900. *Forasaccus Pumpellianus* (Scribn.) Lunell, Am. Midl. Nat. **4:** 225. 1915. Type: Arctic shore, Dr. (Sir *John*) *Richardson;* seen at the Royal Botanic Gardens, Kew, England.

Distinguished from the following variety by its glabrous glumes and by the lemmas which are pubescent along the margins, on the main nerves and on the base of the back. From Colorado in the Rocky Mountains to well inside the Arctic Circle in Alaska, Yukon and Northwest Territory.

Bromus inermis var. **arcticus** (Shear) Wagnon, stat. nov. *B. arcticus* Shear, in Scribn. & Merr., Contr. U. S. Nat. Herb. **13** (3): 83. 1910. *B. Pumpellianus* var. *arcticus* (Shear) A. E. Porsild, Rhodora **41:** 182. 1939. *B. Pumpellianus* var. *villosissimus* Hultén, Fl. Alaska and Yukon. Lunds Univ. Årssk. II. Sect. 2. 38: 251. 1942. Type: *T. A. Walpole 2036*, Sept. 9, 1901; collected in the vicinity of Port Clarence, tundra bank near buildings at Teller Reindeer Station, Seward Peninsula, Alaska; seen in the U. S. National Herbarium (No. *379157*).

This variety is readily identified by its sparsely pubescent to hirsute glumes and lemmas. Except for a single collection from Michigan, it is confined to Alaska, Yukon and the Northwest Territory.

The identity of *Bromus purgans* L. has been the subject of some controversy. Linnaeus described in the *Species Plantarum* (1753) two American species of *Bromus*, namely *B. purgans* and

B. ciliatus. The latter, though apparently not represented in the Linnaean Herbarium (Hitchcock 1908), is sufficiently well characterized by mention of the lemmas as having only the margins pilose "*petalorum marginibus* (*non dorso*) *valde pilosis*". The description of *Bromus purgans*, however, while unusually ample for the *Species Plantarum*, is applicable to at least three American species, namely *B. purgans*, *B. latiglumis* and *B. Kalmii* as currently interpreted. All three of these species may have the lemmas uniformly pubescent on the backs as well as on the margin; the original description of *B. purgans* reads: "*Glumae pilis brevissimis undique extus villosae*".

Bromus purgans was based primarily upon material collected by Kalm in "Canada". Linnaeus doubtfully included in the synonymy of this species the "*Gramen bromoides catharticum*" of Feuillée: "*Differt nostra a Fewillaei radicibus fibrosis nec squamosis; spiculis angustioribus*". Feuillée's plant (1714) was South American in origin, and his plate appears to represent a member of the section *Ceratochloa*. Some authors have for this reason referred several plants of the section *Ceratochloa* to *B. purgans*, as pointed out by Shear (1900). It seems very clear, however, from Linnaeus' definite reference to Kalm's collection, which he described fully, that this collection must be regarded as the type of the species.

In 1907, Hitchcock (1908) visited the Linnaean Herbarium in order to study species that were based wholly or in part upon American material. He found three specimens of *Bromus*, any one of which could have been taken from material collected by Kalm, and all of which had lemmas uniformly pubescent across the backs. Photographs of these specimens were seen in the United States National Herbarium and at the Arnold Arboretum, Harvard University. I am greatly indebted to Dr. W. R. Taylor, Department of Botany, University of Michigan, who, in June, 1950, made a critical examination of the Linnaean specimens for specific characters in order to help solve this problem.

For simplicity, these specimens may best be referred to by their catalogue numbers, 93.10, 93.11, and 93.12. Specimen number 93.10 is marked (Savage 1945) "*purgans* 3 HU" in Linnaeus' handwriting, and "all 3 [sheets 10 to 12, pinned together] one sp. & *purgans* not *ciliatus* ex char. A. Gray" in Asa Gray's

handwriting. I am in complete agreement with Hitchcock in identifying this specimen as the currently interpreted *B. latiglumis* (Shear) Hitchcock, as it has overlapping sheaths with a ring of hairs at their summit. Auricles are apparently not present, as Dr. Taylor was unable to find any; once dried, these structures are easily broken off, hence their absence on old specimens does not necessarily mean that they were never present. The above-mentioned sheath-condition, and a short exsertion of the panicle are characteristic of *B. latiglumis* only. As Hitchcock pointed out, specimen 93.12 is also *B. latiglumis* as shown by overlapping sheaths, although the ring of hairs at the summit of the sheath is less conspicuous. This specimen bears the following marks- "4 HU" in Linnaeus' handwriting, and "*ciliatus*" in the handwriting of J. E. Smith.

Specimen number 93.11 is marked "4 K[alm]" in Linnaeus' handwriting and "*ciliatus*" in J. E. Smith's handwriting. Hitchcock (1908) believed this plant to be "*Bromus purgans* as commonly understood and as described in Shear's Monograph of *Bromus*, and [felt that it] should be taken as the type, in spite of the "4" placed upon the sheet by Linnaeus, probably inadvertantly". It does not have overlapping sheaths and the panicle has flexuous pedicels as was noted by Hitchcock (mss. notes in U. S. Nat. Herb.). The flexuous condition evidently convinced Hitchcock that this was the plant Linnaeus had in mind when describing the panicle of *B. purgans* as "*crispa, flexuosa, nutans*". Hitchcock may have been right in believing it was the specimen Linnaeus had in mind, but it is not a specimen of the material that has been currently referred to *Bromus purgans*. Critical examination of this specimen by Dr. Taylor revealed that it has lower leaves with boat-shaped tips, first glume 3-nerved, second glume 5-nerved, awns 2.25–2.5 mm. long and the panicle about 7 cm. long, all of which are characteristic of the currently recognized *B. Kalmii* A. Gray. Material that has currently been interpreted as *B. purgans* does not have boat-shaped leaf tips, the first glume is 1-nerved, the second glume 3-or rarely 5-nerved, the awn 4–8 mm. long and the panicle 9–25 cm. long.

In 1839 when Gray annotated specimen 93.10, he indicated that he believed it, and also specimens 93.11 and 94.12, to be *B. purgans*. However, he apparently changed his mind, because

in 1848 when he described *B. Kalmii*, he concluded his description by saying, "this is preserved in the herbarium of Linnaeus under the name of *B. ciliatus*, though it is not the plant he described; thence has arisen much confusion". The fact that Gray proposed the specific name of *Kalmii* is, in itself, also indication that Kalm collected the plant which was being described. Thus it seems evident that specimen 93.11 is the basis for *B. Kalmii* and should be designated as the type. When Shear treated this species, he said, "There seems to be no particular specimen designated as the type of this species by Dr. Gray. The sheet in the Gray Herbarium, regarded as that upon which the original description was founded, contains portions of plants from three different localities, two from New York and one from Michigan, varying however but very little from each other. These were taken as the basis of the above description".

Through the kindness of the authorities at the Gray Herbarium, I have been able to study this same sheet of specimens; aside from the fact that it was in Gray's possession at the time of the original publication of *Bromus Kalmii*, there would appear to be no reason to designate one of the plants on the sheet as the type of the species, in preference to the Kalm specimen which was specifically cited by Gray.

Linnaeus' description of *B. purgans* is apparently a composite one taken from more than one plant. The phrase "*Panicula crispa, flexuosa, nutans*", is not applicable to any one of the three specimens in the Linnaean Herbarium. The panicles of numbers 93.10 and 93.12 (both *B. latiglumis*) may be considered as "crisp" while 93.11 (type of *B. Kalmii*) only has a flexuous, nodding panicle. Thus it is apparent that the description is a mixture including *B. latiglumis* and *B. Kalmii*. However, since specimen 93.10 is labelled "*purgans* 3 HU" in Linnaeus' handwriting and the fact that *Bromus* No. 3 in the *Species Plantarum* is *B. purgans*, it seems clear that Linnaeus apparently regarded it as representative of his description. *Bromus purgans*, therefore, should be typified by specimen 93.10 and the name is thus properly applied to the material which has currently been referred to *B. latiglumis*.

Since the name *B. purgans* L. is no longer applicable to the species which has currently been so-called, another name must

be selected to take its place. The earliest valid name is apparently *Bromus pubescens* Muhl. ex Willdenow in "*Enumeratio Plantarum Horti Regii Botanici Berolinensis*" of 1809. Several spikelets from Muhlenberg's "type" specimen (No. M154) collected in Pennsylvania were seen in the U. S. National Herbarium.

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RHODODENDRON MAXIMUM IN NEW ENGLAND

Clarence H. Knowlton

It has been very interesting to bring together these New England records of *Rhododendron maximum* L. as a striking example of discontinuous distribution. The seeds of the shrub are scale-like and small and not likely to be carried far by the wind. There is some reason to assume that the shrub was once more generally distributed in New England, as is the case in the middle and southern states. Since the country was settled the beauty of the flowers has led to hacking of the shrubs, and there have been some attempts at transplanting. The Medfield, Mass. shrubs were approaching extinction when the swamp was purchased in order to protect them, and they were entirely removed from a bog in Richmond, Berkshire County, by ambitious gardeners.

It was my privilege on August 20, 1949, to visit the station for this Alleghenian shrub in Lexington, Somerset County, Maine,

guided by Messrs. Walter Deane and J. Harvey Spear of North Anson, Maine. Lexington is an unorganized township next to Kingfield, and the 45th parallel of North Latitude passes through it, halfway to the North Pole. The shrubs grow in a swampy area near Safford Pond, in rich, mainly deciduous woods. The shrub was discovered in 1845 by one Nathan Safford, who lived nearby, and the stand has spread from a few square rods to nearly two acres. About a quarter of this area is now full of dead shrubs, perhaps due to change in water-level. This region is now grown up mostly to deciduous trees, but according to old maps in 1860 and 1870 it was formerly a cleared and well-occupied farming area. The further spread of the shrubs toward Safford Pond is checked by a lusty growth of alders. The best of the shrubs are ten or twelve feet high, and they flowered well in 1949. This station was reported by F. H. Cowan in RHODORA I, 55, and has been visited by the Josselyn Botanical Society of Maine during its Kingfield meetings.

This is probably the most northern station for this shrub. From east of New England there is but one specimen in the Gray Herbarium, collected at Beaver Dam Gold Mines, Sheet Harbor, Nova Scotia.

Nearly ninety miles away in southwestern Maine, there are several stations, especially in various places near Sebago Lake. These are mostly in the town of Standish, but also at Sanford and Springvale, where three acres are covered. It has been found in South Windham, and at an isolated station in Harpswell, according to Professor Fay Hyland of the University of Maine, who has published an elaborate report on the woody plants of Maine.

In New Hampshire there are at least eight stations for this Rhododendron, from Conway south—Albany, Pittsfield, Grantham, and Strafford, and in the south at Mason, Wilton, and Fitzwilliam. The latter now belongs to the Appalachian Club, and has had splendid care and protection. The shrubs are as luxuriant as any I have seen in the North Carolina mountains, or in cultivation.

I am indebted to my friend, Mr. Waldo F. Glover, a former resident of Groton, Vermont, for information about the Rhododendrons in Caledonia County, Vt., the only section of the state

where they have been found. South of the Montpelier & Wells River Railroad in the town of Groton is Ricker Pond, and they are abundant there. North of the Railroad is the larger Groton Pond, and the shrubs flourish there on the north side. They line the brook which flows from the pond, principally on the east side. This brook is the beginning of Wells River. A mile and a half to the east is Levi Pond, where the shrubs formed a dense thicket in 1891. Some of these have died in recent years. Three or four miles from the head of Groton Pond is Martin's Pond in Peacham, on the south side of which they have held their own for years.

Norfolk County in Massachusetts seems to have been another congenial area for them. Dr. Jacob Bigelow in his Medical Botany, Vol. III, part II, page 102 (1821) says that they grow abundantly on the banks of the Charles River in Dedham, about fifteen miles from Boston, and there is an old herbarium specimen in the Gray Herbarium from Dedham, but apparently there has been no recent collection from this stand if it still exists. Also in Medfield is a station which Dr. Bigelow mentions in his Florula Bostoniensis. In recent years these plants were on the verge of extinction, when the Trustees of Public Reservations purchased the swamp to ensure their preservation. The shrubs have been slow about increasing, and none of them are very tall as yet, but there are scattered blossoms every year. There are herbarium specimens from Walpole, and from nearby Attleboro in Bristol County.

One station reported west of Norfolk County is in Blandford in Hampden County, on the plateau south of the Westfield River. Ralph Hoffman, in his Flora of Berkshire County gives an additional station at Washington (altitude 1750 feet). He also reports that some Lenox gardeners eradicated a station in Richmond, Mass., in a poorly planned horticultural venture. There is also an old specimen collected by William Oakes from Williamstown, but nothing is known of its source.

The Rhododendron has been especially at home in southern Rhode Island. Beach Pond in Exeter had a dense thicket of it in 1914. It has also been collected in the edge of an old cedar swamp in South Kingston, near Kingston Hill, in 1906, and there was an earlier collection in 1879 at Worden's Pond. Professor

W. W. Bailey, in Rhodora II, 218, speaks of its magnificent growth at Wickford and in South County.

In eastern Connecticut there are shrubs at North Stonington, not many miles from the Great Swamp region of southern Rhode Island. Further west, at Lyme, on the coast, it was collected in a deep swamp by C. A. Weatherby in 1917. Quite isolated from other New England stations is one at Union, Tolland County, almost up to the Massachusetts line, in a swamp visited by C. H. Bissell and other botanists in July, 1879.

In Litchfield County, northwestern Connecticut, it is known from Warren, also near the Massachusetts state line, and not very far from the station at Blandford, Mass. Winchester and Norfolk complete the roster for the state.

This Rhododendron apparently prefers acid soil conditions, and is completely absent from the extensive calcareous area of western Vermont. It may well have been more frequent and abundant in the past, as some of the stands have seemed to be waning, though others have spread in recent years. The beauty of the flowers has led to indiscriminate hacking of the shrubs. Experiments in transplanting have been unsuccessful.

HINGHAM, Massachusetts

THE NORTH AMERICAN VARIETY OF MILIUM EFFUSUM

M. L. FERNALD

MILIUM EFFUSUM L., var. **cisatlanticum,** var. nov., a var. typica recedit foliis glaucescentibus laminis plerumque laevibus plus minusve succulentibus 0.9–2 cm. latis apicibus vix attenuatis; panicula laxiora verticillis remotis ramis elongatis plerumque binis; spiculis 3–5 mm. longis; fructibus 2.5–3 mm. longis.—Eastern North America, from southeastern Labrador Peninsula and northwestern Newfoundland to Algoma District, Ontario, and Minnesota, south to Nova Scotia, northern and western New England, Pennsylvania, northern Maryland, West Virginia, south-central Ohio, northern Indiana and north-central Illinois. TYPE from NEWFOUNDLAND: thickets on quartzite ledges and gravel along brook, Deep Gulch, Doctor Hill, Highlands of St. John, July 30, 1929, *Fernald, Long and Fogg,* no. 1332 (TYPE in Herb. Gray.; ISOTYPE in Herb. Phil. Acad.).

Typical *Milium effusum* L., the plant of Eurasia, there has a range covering much of the vast continental area, from northernmost Scandinavia (lat. 70°) eastward to northern Kamtchatka, thence south to southern Europe, Asia Minor, the Himalaya, etc. On the other hand, the American plant which passes as identical with the Eurasian one has a very limited range, in the richest areas of eastern North America: from lat. 51° 25′ at the western entrance to the Straits of Belle Isle westward to the north shore of Lake Superior (lat. 47°) and Minnesota, thence south to Nova Scotia, northern and western New England, Pennsylvania, upland Maryland (lat. 39° 30′), West Virginia (to lat. 38° 20′), south-central Ohio (ca. 40°), northern Indiana (41° 30′) and north-central Illinois (ca. 40° 20′); *i. e.* from latitude 51° 25′ to 38° 20′, and unknown in western North America. Such a restricted range in America at once suggests doubt as to whether our plant, completely isolated, is identical with the nearly continental Eurasian species which there stretches across 160° of longitude and from lat. 70° nearly to lat. 35°.

When, therefore, one looks over a large series of specimens and the best Old World descriptions, he is at once struck by the difference in the inflorescences on the two vast continents. This habital difference in the panicle is well brought out in two readily accessible works: the Eurasian plant shown in Hegi, Ill. Fl. Mittel-Eur. i. t. 25, fig. 3; the American in Hitchcock, Man. Grasses U. S. fig. 860. Hegi's panicle is accurately described: "panicle-branches mostly up to 5 (4–7) . . . up to 1 dm. long (Rispenäste meist zu 5 (4 bis 7) . . . bis 1 dm. lang)"; Hitchcock correctly describes the panicle of our plant with "the slender branches in remote spreading or drooping pairs or fascicles". Here and in other characters their descriptions diverge and it is clear that each was describing the plant of his own area; and a study of 45 Eurasian specimens and 137 North American ones shows several nearly or quite definite distinctions in the series.

Perhaps the most striking character in the herbarium is in the branching of the panicle. Of the Eurasian Hegi (as already noted) says (and Ascherson & Graebner and others similarly say): "Rispenäste meist zu 5 (4 bis 7)", while of ours Hitchcock says: "the slender branches in remote . . . pairs or fascicles". As

early as 1843 John Torrey, in his Flora of the State of New York, 422, said "the lower branches clustered; upper ones opposite". Nevertheless, he concluded: "Our plant seems to be identical with the *M. effusum* of Europe", a conclusion which has been unchallenged for more than a century.

Returning to the contrasts, we may next note that the common Eurasian plant is described as "70 bis 100 cm hohes" (0.7–1 m.). In unfavorable conditions ours may be even lower, but Torrey said 3–6 feet (0.9–1.8 m.) and Marie-Victorin says, correctly, 0.6–2 m. high. In Europe the "Leaves are grass-green, with blades mostly (especially the basal) . . . up to 2 dm. long and 1.5 cm. broad, very rough on the margin and short-acuminate (Blätter grasgrün, mit meist (weingstens die grundständigen) . . . bis 2 dm langen und 1,5 cm breiten, am Rande sehr rauhen, kurz zugespitzten". When fresh (not well shown after drying) the leaves of our plant are glaucous, somewhat succulent or fleshy and usually quite smooth on the upper face, though scabrous on the margin. The longer ones (especially of the basal tufts, although sometimes as short as in the European, often reach a length of 3 or 4 dm. (Torrey said 8–12 inches or 1.5–3 dm.) and in the richest habitats a breadth of 1.2–2 cm. In the Old World material the margin and usually the upper surface of the leaf-blade is scabrous; with us it may be so but the upper surface is oftenest quite smooth to touch. Furthermore, a gradually acuminate tip of the blade is exceptional with us. Usually in America the lower and median leaves have almost blunt tips or these gradually rounded to the apex. In the Eurasian plant the spikelets are "about 3 mm. long" (Hegi) or "almost 3 mm. long" (Aschers. & Graebn.); in ours they range from 3–5 mm. in length. In the European plant the fruits are about 2 mm. long ("ca. 2 mm lang"—Hegi; "etwa 2 mm lang"—Aschers. & Graebn.) and oval. In our plant they are 2.5–3 mm. long and narrowly ovoid to broadly lanceolate.

With such a number of differences it is clear that the North American plant is really identical with the Eurasian; but enough of the characters break down in individual cases on both sides of the Atlantic to indicate that they are not specifically separable. In general their very similar habit, leaves, panicles and spikelets separate them both from the other recognized species of *Milium*.

The inflorescence of our plant is nearly repeated in *M. effusum*, forma *Lerchenfeldianum* (Schur) Aschers. & Graebn. with the general characters of the Old World plant but with "Rispenäste unvergweigt," in Europe; and very exceptional colonies in America superficially simulate Old World specimens. The strong departures in several characters, however, are so combined in our plants as to make their separation as a well-defined geographic variety desirable.

Representative specimens in the Gray Herbarium and in the Herbarium of the New England Botanical Club are as follows, these selected from 137 collections studied:

Newfoundland: Highlands of St. John, *Fernald, Wiegand, Long, Gilbert and Hotchkiss*, no. 27,511; Ingornachoix Bay, *Fernald, Wiegand & Kittredge*, no. 2488.

Quebec: Blanc Sablon (Straits of Belle Isle), *Fernald & Wiegand*, no. 2489; Rivière des Caps, Anticosti, *Victorin & Rolland*, no. 27,813; Table-topped Mt., Gaspé Co., *Fernald & Collins*, no. 383; Mt. Albert, Gaspé Co., *Fernald & Collins*, no. 402; Cap au Renard, Gaspé Co., *Pease*, no. 19,228; Grand Cascapedia River, Bonaventure Co., *Williams, Collins & Fernald*, July 12, 1905; Cap Chat River, Matane Co., *Fernald & Pease*, no. 24,844; Bic, Rimouski Co., July 16, 1904, *Collins & Fernald;* Rivière du Loup, Temiscouata Co., *Fernald & Weatherby* in Pl. Exsicc. Gray. no. 515; Lake Ouimet, Terrebonne Co., June 18, 1922, *Pease*, no. 19,023; Bolton, Brome Co., July 25, 1926, *Knowlton.*

New Brunswick: Clair, July 11, 1904, *A. A. Eaton;* Woodstock, *Pease*, no. 25,241.

Nova Scotia: St. Paul Island, *Perry & Roscoe*, no. 46; Pleasant Bay, Inverness Co., *Pease*, no. 26,632; Five-mile River, Hants Co., *Pease & Long*, no. 19,859.

Maine: Monticello, *Fernald & Long*, no. 12,587; Township iv, Range 18, Somerset Co., July 7, 1917, *St. John & Nichols;* Jackman, *Fernald & Pease*, no. 24,842; Day Mt., Strong, August 31, 1904, *Chamberlain & Knowlton.*

New Hampshire: Stewartstown, *Fernald & Pease*, no. 16,680; Colebrook, *Pease*, no. 10,384; Carroll. *Pease*, no. 30,155; Milan, *Pease*, no. 17,117; Mt. Willard, Crawford, July 1, 1898, *Williams;* Croydon, *F. C. Seymour*, no. 4732.

Vermont: Guildhall, *Pease*, no. 23,728; Willoughby, June 24, 1892, *Kennedy;* Eden, June 9, 1918, *Knowlton;* West Monkton, June 16, 1881, *Faxon;* Cavendish, *Fernald*, no. 446.

Massachusetts: Middlefield, *Fernald & Long*, no. 8690; Mt. Greylock, North Adams, July 25, 1916, *Hoffmann;* West Stockbridge, May 30, 1920, *Hoffmann.*

Connecticut: Hartland, *Weatherby*, no. 3494.

New York: Bonaparte Swamp, Lewis Co., *House*, no. 6278; Canton, *O. P. Phelps*, no. 168; Utica, *Gray*, N. Am. Gram. Cyp., no. 113; Arkville, *Agnes Chase*, Am. Grasses, no. 631; Wayland, *Wiegand*, no. 15,209; Savannah, *F. P. Metcalf*, no. 5598; Cortland, *Eames & MacDaniels*, no. 3499.

Pennsylvania: Elkdale, *Fogg*, no. 12,196; Elmhurst, *Glowenke*, no. 5896; Moscow, *Glowenke*, no. 7843; Pavia, *Berkheimer*, no. 2517; Brockway, *Wahl*, no. 2287 (leaves 2 cm. broad); Morris, *Fogg*, no. 16,096.

West Virginia: Canaan Valley, Tucker Co., *Allard*, no. 6880.

Ontario: Niagara, June 6, 1891, *J. Macoun;* Galt, *Montgomery*, no. 1085; Stokes Bay, *Krotkov*, no. 8703; Sault Ste. Marie, *F. J. Hermann*, no. 7261; Batchawana, Algoma Distr., *Taylor et al.*, no. 1084.

Michigan: Port Huron, *C. K. Dodge*, no. 39; Tecumseh, *Folwell*, no. 99; Ann Arbor, June 8, 1898, *Burnham;* Lansing, June 7, 1886, *L. H. Bailey;* Gogebic Lake, *Pease & Bean*, no. 26,468; West Bluff, Keweenaw Co., *Fernald & Pease*, no. 3086.

Ohio: Braceville Twp., Trumbull Co., June 9, 1907, *Webb & Rood:* Nelson Ledge, Portage Co., *Webb*, no. 923.

Wisconsin: Granite Heights, *Cheney*, no. 3107; Mole Lake, Forest Co., *E. J. Palmer*, no. 27,747; Racine, June 21, 1881, *J. J. Davis.*

Illinois: Elgin, 1863, *Vasey.*

GALIUM HARCYNICUM: A PROBLEM IN INTERPRETING THE INTERNATIONAL RULES

M. L. Fernald

Recent European taxonomists agree that this species of western, central and northern Europe (northwest to Iceland) and southeastern Newfoundland, which has often passed as *Galium saxatile* L. Sp. Pl. i. 106 (1753), is not that species "*Habitat* in Hispaniae *maritimis lapidosis*". Unfortunately, in first recording this "Heath-Bedstraw" as a native of the rocky barrens of southeastern Newfoundland, in Rhodora, xxviii. 83 and 236 (1926), I accepted for the plant the name of Linnaeus (1753), not realizing, as recent Europeans assert, that *G. saxatile* sensu many authors, not L. (1753), should be called *G. harcynicum* Weigel, Obs. 25 (1772) or as most of them, including many who claim to follow the International Rules, insist on writing it *G. hercynicum*, the spelling which Weigel did not use.

As to the spelling of the specific name, the current European practice, starting perhaps with DC. Prodr. iv. 598 (1830), departs from Weigel's original and only spelling "*harcynicum*". Weigel, naming the species *Galium harcynicum*, cited the *Galium caule decumbente*, etc. of Haller, Hist. Stirp. Helvet., no. 717 (1768). Haller's plant grew "In sylva Hercynia", "Hercynia silva" being the classical name of the great forest extending from the Schwarzwald to the Harz Mountains. In composing his specific name *Galium harcynicum* Weigel, unhappily, gave a Germanic rather than a clssical form to it. In 1805, two of the most scholarly of botanists, Lamarck and DeCandolle, Fl. Fr. ed. 3, iv. 261 (1805) accepted, without indication of etymological protest, and described in detail as their no. 3376: "Gaillet du Hartz. *Galium Harcynicum*". At the same period other learned botanists, such as Gmelin, Fl. Baden. i. 338 (1805), unequivocally called the plant by its original binomial. It was later than that that the change to *G. hercynicum* was made. This is indicated in *Index Kewensis* where one finds the following entries under *Galium*, though with the misidentification which others had made:

harcynicum, Weigel, Obs. 25, sphalm. vide = *hercynicum*.
hercynicum, Weigel, l. c. 25 = saxatile.

The assertion that Weigel's perhaps unfortunate spelling was an orthographic or typographic lapse is only an assumption. So long as botanical nomenclature was what has been called a "personal-preference, hit-or-miss" matter, authors changed at will the original spellings. Now, however, we have the International Rules of Botanical Nomenclature. Article 70 says:

> The original spelling of a name or epithet must be retained, except in the case of a typographic error, or of a clearly unintentional orthographic error . . .
>
> Note 1. The words "original spelling" in this Article mean the spelling employed when the name was validly published . . .

Then as examples of retention of original spelling are the following: "*Mesembryanthemum* L. (1753) and *Amaranthus* L. (1753) . . . must not be altered to *Mesembrianthemum* and *Amarantus* respectively, although these latter forms are philologically preferable. *Valantia* L. (1753) and *Clutia* L. (1753), commemorating Vaillant and Cluyt respectively, must not be altered to *Vaillantia* and *Cluytia*". So far as I can see the

original specific epithet *harcynicum*, accepted by Lamarck & DeCandolle and many others as a valid name, "must not be altered to" *hercynicum*, "although" this latter form is "philologically preferable". If this case is not exactly parallel with those cited in the International Rules, as it seems to be, then the latter need clarification. If this and other "Doubtful cases should be referred to the Executive Committee", as the Rules direct, they will, judging from past experience, apparently get no consideration whatever and "personal preference" will again prevail!

As to the difference between the retention of the original spelling and the rejection of a name as originally published, the editors of the International Rules were as inconsistent as possible. Among the "Examples of unintentional orthographic errors" one finds: "*Libertia Laurencei* Hook. f. (*Fl. Tasman.* II. 34: 1860) being an orthographic error for *L. Lawrencei* Hook. f. (*l. c.* 373, t. 129), the latter spelling should be adopted: the collector's name was Lawrence, not Laurence." The original and philologically correct *Laurencei* given with the Latin description, "the spelling employed when the name was validly published", must by this interpretation be thrown out because in a list of Additions (p. 373) and in the caption of the plate it was given the philologically incorrect form *Lawrencii*. Bentham, a scholar like Hooker fil., in his Fl. Austral. vi. 414 (1873) used the original (but, by the interpretation of the International Rules, incorrect) *L. Laurencei* and Index Kewensis, iii. 76 (1894), "COMPILED . . . UNDER THE DIRECTION OF JOSEPH D. HOOKER (names there published cited as of "Hook. fil. & Jackson"), has only *L. Laurencei*. The species was "validly published" with a philologically correct name and that name was consistently used in subsequent writings of the author's intimate and scholarly associates or under his sponsorship. Therefore, by the interpretation of the editors of the International Rules, that name, which was correctly spelled (as a Latin name) in the original description must be excluded as an "unintentional orthographic error" because the plant was discovered by *Lawrence* (not *Laurence*). *Valantia* and *Clutia* (for *Vaillant* and *Cluyt*) must stand because Linnaeus incorrectly Latinized the names of those scientists! "Consistency, thou art a jewel!"

A CULINARY USE FOR THE LEAF OF VITIS RIPARIA

Herbert Habeeb

Happily, when the old-folks shook off the dust of centuries of subjugation and oppression to come to the New World, they still retained a taste for certain dishes of prepared foods, one of which entails the use of the leaf of *Vitis*. And fortunately, the leaf of *Vitis riparia* Michx. was soon found to be particularly suited for this purpose. The leaves, gathered in June at maximum size and still tender, are rolled around a mixture of ground meat and rice into cigar-like shapes with ends tucked in. The resulting cooked product, *rolled grapeleaves*, forms a deliciously tart main course with or without the application of lemon-juice.

As no mention of this use of the wild grapeleaf is found in that remarkably complete work on *Edible Wild Plants of Eastern North America* by Fernald and Kinsey, it occurred to the writer that this is worthy of a note in Rhodora. And of course the recipe of a little-known highly favored dish is hereby passed on to the readers of Rhodora and botanical friends.

The leaves are gathered fresh, and are made ready by snapping off the petioles right at the blade. For the filling use one pound of minced meat, lamb or beef, with a little suet, to one cupful of (long) rice; mix in a bowl, and salt and pepper to taste. Place about a tablespoonful of the filling in the center of the leaf, give it a roughly cylindrical shape, then fold leaf-edges over the cylinder-ends and roll loosely from the leaf-base towards the leaf-apex. Stack these rolled grapeleaves in a pot, add cold water to two-thirds of their depth, and boil gently for one hour. A plate should be placed under the rolled grapeleaves to prevent burning, if thick-walled utensils, "Wear-ever", are not at hand.

My father, who claims to have been at six years of age a cook's helper, washing dishes and setting the table for 40 Italian railroad workers on the Beirut to Damascus line, says, "people like to eat a dish like this, but they just will not cook it". But. considering the gusto with which botanists in the past have tackled strange dishes, I have no fear that this recipe will go untried.

Incidentally, if the leaves are gathered later in the season, they are rather tough. But they can be salted away in a jar with a

liberal amount of ordinary table-salt on each leaf. Placed in a cool spot in the cellar, they keep through the winter. The salting tenderizes the leaves. To use the salted leaves, wash each leaf and soak over night. The leaves also keep dried.

GRAND FALLS, New Brunswick

THE EIGHTH EDITION OF GRAY'S MANUAL OF BOTANY.[1]—Amateur and professional botanists alike have eagerly looked forward to this new edition of Gray's Manual. Forty-two years is a long time in the light of the rapid strides which all branches of botanical science have made in recent years and when botanists realized that the new edition was really on the way, it seemed that it would never actually materialize. Now that the book is before them, their long period of waiting has been richly rewarded. It might be said that this volume is more than a revision, so much that is new has been incorporated into it. In looking it over, it is borne in upon one what a prodigious amount of research was involved. This eighth edition comes off the press just two years over the hundredth anniversary of the original edition by Prof. Gray in 1848.

To this edition Prof. Fernald has given the fruits of a lifetime of study, not only in the herbarium but to a greater extent than can be said of any of the previous authors, of intensive work in the field. He has added considerably to the area covered by the seventh edition by including the Gaspé Peninsula and Newfoundland, in fact all the region south of the Straits of Belle Isle. Since the last edition there has been much careful and intensive field-work in all parts of the manual range. More than any other such manual this book represents an intimate knowledge of the plants in the field. Especially is this true of the author's own field-work. Such accurate understanding of the live plants is reflected in the writing of the descriptions in the text.

There are certain specifications which the botanist who uses such a manual has a right to expect. Two such criteria seem to be of prime importance. First the text should show the highest degree of accuracy. How well the Manual shows this, only those who have followed the author's painstaking work through the years can fully realize. The second criterion is that the Manual should be usable for both professional and amateur botanists. In looking over the book various devices to facilitate its use are at once apparent. The practice of italicizing the most distinctive characteristics has been followed as in the seventh edition. The use of various kinds of type to make the text clearer is also followed. Under the genera several categories have been used for grouping as for example subgenera, sections and series. By this means the more conservative treatment of the genera has been possible while at the same time indicating worth-while distinctions. Many of the illustrations of the older book have been retained and in addition many more figures have been used here for the first time. These are of much help in emphasizing critical structures. The glossary again appears, much expanded and in larger type to make its use easier. At first the appearance of two indices, one to Latin and the other to colloquial names, is a surprise, as in the seventh edition they had been merged in one master-index. Again this innovation may be an advantage. From the standpoint of the beginner, the absence of unfamiliar Latin terms in with the English names will probably render the book more

[1] MERRITT LYNDON FERNALD—*Gray's Manual of Botany*, Eighth (Centennial) Edition—Illustrated. A Handbook of the Flowering Plants and Ferns of the Central and Northeastern United States and Adjacent Canada. LXIV + 1632 pp. New York—American Book Company 1950. $9.50.

usable and certainly for the advanced amateur and the professional botanist, a clean Latin index is a time-saver.

The families, as they were known in the seventh edition, have been for the most part retained, as well as the order in which they occur. There has been some readjustment in accordance with the better understanding of the plants in our area and of their relationships. The inclusion of one new family, the *Butomaceae*, was made necessary by the aggressive appearance of *Butomus umbellatus* in our Flora. A few other families are new to the area. In some cases there has been a significant expansion of a group, well illustrated in the treatment of *Amelanchier* and *Antennaria*. To one familiar with the seventh edition the nomenclatural changes may seem too extensive but such alterations were necessary because of a better understanding of the types and of the original descriptions. The newer revised nomenclature and modern methods are well shown in the treatment of the genus *Carex*, a treatment which will be welcomed by all students of this group.

Such a work as this naturally contains a great number of new forms, the result in part of the enlarged area covered. This is particularly true in such genera as *Salix*, *Betula*, *Saxifraga*, *Astragalus* and *Oxytropis*. To a much greater extent this is the result of more intensive study of the old area and a more critical study of old entities. Readers of RHODORA have been aware of this reviewing of supposedly well-known genera and species and have been stimulated to a more critical attitude in their own collecting. The new Manual crystallizes this attitude and will be sure to add an increased interest in our local Flora. At the same time, plants which really do not show a tendency to establish themselves, have been excluded or only casually noted.

There are other features which will make the book more usable. The more adequate keys, in general dichotomously arranged, are such an improvement over the older book. The descriptions are more extensive and in many cases entirely rewritten and so have smoothed out many of the difficulties encountered in the older book. Pronunciation is indicated as in the previous edition. Here even the seasoned botanist may find a surprise.

Some innovations are encountered. One new feature is the adding of the meaning of each scientific name, whether genus, species or variety. In the seventh edition this was done only for the genera. This will add greatly to the interest in the study of individual plants. Scientists are not supposed to have imaginations nor are they noted for their sense of humor; but in reading of the way in which some of our plants received their names, one is again and again surprised by the strange ideas held by the early authors. Some examples will show that the study of these names may be in itself a fascinating recreation. *Dryopteris Robertiana* was not named for a person but for its supposed identity with Herb Robert. *Quercus imbricaria* (overlapping) received its specific name, not from imbricated scales of its cup, but because in Michaux' time the wood was used for shingles. The specific names of both *Digitaria Ischaemum* and *D. sanguinalis* mean Styptic, one from Greek and the other from the Latin, due to the reddish color of the plants. *Potentilla Crantzii* was so named by the author of it for himself. Even the author of the Manual has allowed himself a bit of humor in *Rubus pernagaeus* (of the land of hams, from the type-region, Smithfield, Va.). *Rhus Vernix* (varnish) was the result of a misconception of Linnaeus, who thought Asiatic lacquer was derived from this species. *Cornus* (horn) was so named because of hardness of its wood. The wood had various uses as the old English Dagwood or dagger-wood would indicate, preserved in our English Dogwood.

Also where there is a vernacular term used in Quebec, it has been indicated, in addition to the English name. Another acknowledgment of the state of present-day scholarship, is the use of Roman type for Greek roots. This feature undoubtedly will add to the usefulness of the book.

When a group has had a thorough revision in recent years, reference is given in a foot-note to the place where the fuller treatment may be found, in many cases in RHODORA. The International Rules of Botanical Nomencla-

ture have been followed so as to make the work usable to the great number of botanists all over the world.

The new work has 706 pages more than the seventh edition. Hence the book is somewhat larger than that edition. The publishers have done an excellent job in incorporating such a large increase of material in a single volume which, though large, is not clumsy. Of the entities treated in the book the Monocots and Dicots show the greatest increase. Some statistics might be interesting:

7TH ED.	GENERA		SPECIES	
	NATIVE	INTROD.	NATIVE	INTROD.
Monocots	184	26	993	92
Dicots	596	154	2280	571
Total	780	180	3273	663
8TH ED.				
Monocots	191	50	1250	165
Dicots	616	234	3029	926
Total	807	284	4279	1091

Certainly the amateur will find the present edition very usable and as free from technical difficulties as is consistent with accurate differentiation. All botanists are indebted to Prof. Fernald for the profound scholarship exhibited by the Manual and realize that he has rendered a service to science that would be hard to duplicate.—RALPH C. BEAN, Wakefield, Mass.

SCAMMAN'S FERNS AND FERN ALLIES OF NEW HAMPSHIRE.[1]—Attention should be called to this excellent treatise on the pteridophytes of New Hampshire, published nearly three years ago but not yet sufficiently distributed, and practically unnoticed in the reviewing literature. It provides a carefully prepared list of 71 species and 60 infraspecific forms and hybrids known in the state, with keys to families, genera, species and varieties, and for each species brief synonymy, a paragraph or two discussing the distinctive characters, and a statement of general and local range, the latter with citation of counties or towns in the case of species that are not distributed throughout. The systematic treatment is followed by a fairly full bibliography, a glossary, a list of authors cited with full names and dates, and a full index. The excellent line drawings—those of the ferns by Dr. Shirley Gale Cross and Gordon W. Dillon, those of Equisetum and Lycopodium, as well as one plate of Dryopteris, by Mrs. Una F. Weatherby—should be very helpful in identification. An outline map of the state showing the counties and perhaps some of the principal collecting localities would have added to the utility of the work.

The only similar separate work for any New England state is Mrs. Edith B. Ogden's The Ferns of Maine (1948), which covers a more restricted field in greater detail. It includes only the ferns proper (Filicineae), gives comparatively full descriptions as well as keys, and cites all specimens examined or recorded in the literature.—S. F. Blake.

[1] SCAMMAN, EDITH. *Ferns and Fern Allies of New Hampshire.* New Hampshire Academy of Science Bull. 2. 96, [2] p. incl. 18 pl. Durham, N. H., 1947. (Obtainable from Dr. R. L. Blickle, Durham, for $1.25.)

Volume 52, no. 619, including pages 185–208, was issued 2 August, 1950.

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